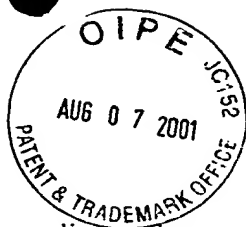


Claims



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Related Pending Application	
Related Case Serial No:	09/206,295
Related Case Filing Date:	12-07-98

1. A remote diagnosis system, comprising:

a central computer system configured to receive user request data related to a user request and to address said user data:

5 at least one image forming apparatus connected to said central computer system and including a user request data input device, through which user request data is input, and a user request data transmitting device configured to transmit said user request data from said at least one image forming apparatus:

10 a data communication adapting device configured to collect said user request data from said at least one image forming apparatus and transmit said user request data to said central computer system:

an interface configured to interface said at least one image forming apparatus with said data communication adapting device:

15 a communication network configured to connect said data communication adapting device with said central computer system: wherein,

said central computer system includes:

a plurality of request-dealing terminal computers each separately taking charge of at least one corresponding image forming apparatus to address said user request data; and

20 a data receiving terminal computer configured to receive said user request data from said at least one image forming apparatus and automatically distribute said user request data to prescribed of said plurality of request-dealing computers responsible for said user request data.

2. A remote diagnosis system as claimed in claim 1, further including:

25 a request-dealing computer determining device employed in each of said plurality of request-receiving computers, configured to determine at least one prescribed request-dealing computer to which said user request data is transferred based on received identification data of said user request data.

3. A remote diagnosis system as claimed in claim 1, further including:
a remaining request data inspecting device configured to inspect whether a prescribed amount of user request data to be addressed remains in said prescribed request-dealing computer; and

5 a user request data transfer-controlling device configured to control said user request data inspecting device such that said user request data is transferred only when a predetermined amount of user request data does not remain in said prescribed request-dealing computer.

10 4. A remote diagnosis system as claimed in claim 2, wherein said prescribed amount of user request data comprises at least one user request data.

5. A remote diagnosis system as claimed in claim 3, wherein said prescribed request-dealing computer addresses a plurality of user request data in a prescribed priority order.

6. A remote diagnosis system, comprising:

15 a central computer system configured to receive user request data related to a user request and to address said user request data;

at least one image-forming apparatus connected to said central computer system and including a user request data input device, through which data related to said user request data is input, and a user request data transmitting device configured to transmit said user request data having identification data therein;

20 a data communication adapting device configured to collect said user request data from said at least one image forming apparatus and transmit said user request data to said central computer system;

an interface configured to interface said at least one image forming apparatus with said data communication adapting device;

25 a communication network configured to connect said data communication adapting device with said central computer system; wherein,

said central computer system includes:

a plurality of request-dealing computers each separately taking charge of at least one image-forming apparatus to address said user request. wherein, each of said request-dealing computers includes:

5 a user request data receiving and storing device
configured to receive and store a plurality of said user request
data in an order of a user request data receiving time;

a priority order-determining device configured to
determine a priority order of addressing said user requests;

10 a displaying device configured to display said user request data; and
a display controlling device configured to control said displaying
device such that said user request data are displayed in said priority order.

15 7. A remote diagnosis system as claimed in claim 6, wherein said display controlling device controls said displaying device such that said user request data are displayed in order of said user request data receiving time, when a plurality of user request data having a same priority are received by said user request data receiving device.

8. A remote diagnosis system as claimed in claim 6, wherein said displaying device displays said user request data having different priority levels in different colors.

20 9. A remote diagnosis system as claimed in claim 6, wherein said request-dealing computer includes a response time setting device, through which a prescribed time period corresponding to said image-forming apparatus or user for addressing said user request are input, and said displaying device displays user request data in a different manner when said user request data has not been addressed within said prescribed time period set by said response time setting device.

25 10. A remote diagnosis system as claimed in claim 9, wherein said displaying device blinks said problem request data.

11. A remote diagnosis system as claimed in claim 9, wherein said display controlling device gives a first priority to said user request data and then arranges a plurality of user request data in a prescribed priority order.

12. A remote diagnosis system, comprising:

5 a central computer system configured to receive problem data related to a problem and to resolve said problem;

at least one image-forming apparatus connected to said central computer system and including a self-call data generating device that generates self-call data constituted by identification data and said problem data, and a self-call data transmitting device that
10 transmits said self-call data from said image-forming apparatus to said central computer system by self-calling;

a data communication adapting device configured to collect said self-call data from said at least one image-forming apparatus and transmit said self-call data to said central computer system;

15 an interface configured to interface said at least one image-forming apparatus with said data communication adapting device;

a communication network configured to connect said data communication adapting device with said central computer system, wherein;

said central computer system includes:

20 a plurality of problem resolving terminal computers each separately taking charge of a prescribed image-forming apparatus to resolve a problem therein, wherein, each of said problem resolving terminal computers includes:

a condition determining device configured to determine if said problem has been resolved by a user; and

25 a reset command-transmitting device that transmits a reset command to said image-forming apparatus only when said image-forming apparatus determines that a status of said image forming apparatus of a problem is not reset by said user.

13. A remote diagnosis system as claimed in claim 12, further comprising:

a status determining device disposed in said image forming apparatus configured to determine a status of said image forming apparatus when said reset command is received by said image-forming apparatus; and

5 a response transmitting device disposed in said image-forming apparatus, which transmits a valid or invalid answer data to said central computer system through said interface, data communication adapting device, and data communication network depending on said status of the image-forming apparatus.

14. A remote diagnosis system as claimed in claim 13, wherein:

10 said valid answer data is generated when said image forming apparatus is determined to have resolved said problem or is executing an image formation, and

said invalid answer data is generated when said image-forming apparatus is determined as not having resolved said problem or is not executing said image formation.

15. A remote diagnosis system as claimed in claim 14, wherein:

15 said invalid answer data is constituted by a BUSY response data that indicates that said image-forming apparatus is executing said image formation when said reset command is received during image formation of said image forming apparatus.

16. A remote diagnosis system as claimed in claim 15, wherein:

said reset command transmitting device retransmits said reset command, when said BUSY response is not received by said central computer system.

20 17. A remote diagnosis system as claimed in claim 15, wherein:

said reset command transmitting device retransmits said reset command after said image-forming apparatus stops said image formation when said BUSY response is received by said central computer system.

18. A remote diagnosis executing method, comprising steps of:

25 generating user request data related to a user request from an image forming

apparatus;

transmitting said user request data to a central computer system from said image forming apparatus;

receiving said user request data at a request-receiving computer of said central computer system;

determining a prescribed request-dealing computer based on identification data included in said user request data; and

automatically distributing said user request data to said prescribed request-dealing computer.

10 19. A remote diagnosis executing method as claimed in claim 18, further comprising a step of:

resolving a plurality of user request data in a prescribed priority order.

20. A remote diagnosis executing method comprising steps of:

generating user request data related to a user request from an image forming apparatus;

transmitting said user request data to a central computer system from said image forming apparatus;

receiving said user request data at a request receiving computer of said central computer system;

determining a prescribed user request resolving terminal computer based on identification data included in said user request data;

determining whether a prescribed amount of user request data to be addressed remains in a prescribed request dealing computer; and

transferring said user request data only when said prescribed amount of said user request data does not remain in said prescribed terminal computer.

21. A remote diagnosis executing method as claimed in claim 20, further comprising a step of:

resolving a plurality of user request data in a prescribed priority order.

22. A remote diagnosis executing method, comprising steps of:

generating problem data related to a problem of an image forming apparatus in said image-forming apparatus;

5 transmitting said problem data to a central computer system from said image-forming apparatus by self-calling;

receiving said problem data at a data receiving terminal computer of said central computer system;

10 determining a prescribed problem resolving terminal computer based on identification data included in said problem data;

automatically distributing said problem data to a prescribed problem resolving terminal computer;

determining a priority order of addressing said problem data; and

displaying said problem data in said priority order.

15 23. A remote diagnosis executing method as claimed in claim 22, further comprising a step of:

displaying said problem data in order of a problem data receiving time, when a plurality of problem data having a same priority are received.

20 24. A remote diagnosis operation method as claimed in claim 22, further comprising a step of:

displaying said problem data having different priority levels in different colors.

25 25. A remote diagnosis operation method, comprising steps of:

generating problem data related to a problem of an image forming apparatus in said image forming apparatus;

transmitting said problem data to a central computer system from said image forming apparatus by self-calling;

receiving said problem data at a data receiving terminal computer of said central

computer system;

determining a prescribed problem resolving terminal computer based on identification data included in said problem data;

5 automatically distributing said problem data to said prescribed problem resolving terminal computer;

determining whether a problem can be resolved by a user by resetting a status of said image-forming apparatus; and

10 transmitting a reset command to said image forming apparatus from said problem resolving terminal computer when said status of said image forming apparatus is not reset by said user.

26. A remote diagnosis system as claimed in claim 29, further comprising steps of:

determining a status of said image-forming apparatus, when said reset command is received by said image-forming apparatus; and

15 responding by transmitting a valid or invalid answer data to said central computer system from said image forming apparatus depending on said status of the image forming apparatus.

27. A remote diagnosis system as claimed in claim 29, further comprising steps of:

20 determining a status of said image-forming apparatus, when said reset command is received by said image-forming apparatus; and

responding by transmitting invalid answer data to said central computer system from said image-forming apparatus when said image-forming apparatus is executing image formation when received said reset command signal.

28. A remote diagnosis system as claimed in claim 27, further comprising a step of:

25 re-transmitting said reset command when said invalid answer data includes a BUSY response data.

29. A remote diagnosis system as claimed in claim 27, further comprising a step of:

re-transmitting said reset command after said image forming apparatus stops said image formation when said invalid answer data includes BUSY response data.

30. A remote diagnosis system, comprising:

5 central computer means for receiving user request data related to a user request and for addressing said user request data:

 image-forming means for forming images connected to said central computer system and including user request data inputting means for inputting request data and data transmitting means for transmitting said user request data from said image-forming means;

10 data communication adapting means for collecting said user request data from said image-forming means and for transmitting said user request data to said central computer means;

 interfacing means for interfacing said image forming means with said data communication adapting means;

15 communication networking means for communicating said user request data from communication adapting means with said central computer system; wherein,

 said central computer means includes:

 request-dealing terminal computer means for taking charge of a prescribed image-forming means to address corresponding of said user request data; and

20 data receiving terminal computer means for receiving said user request data from said image forming means and for automatically distributing said user request data to said prescribed request-dealing computer means for said corresponding user request data.

Abstract

Remote Diagnosis System and Method

5 A remote diagnosis system includes a central computer system that receives user data related to a user request and deals with the user request data, and at least one kind of image-forming apparatus connected to the central computer system. Each image-forming apparatus has a user request data input device, through which data related to a user request is optionally input, and a user request data transmitting device that transmits the user request data to the central computer system. A data communication adapter collects the user request data from the at least one kind image forming apparatus and transmits the user request data to the central computer system. An interface interfaces the at least one kind of image-forming apparatus with the data communication adapter, and a public communication network connects the data communication adapter with the central computer system. The central computer system includes a plurality of request-dealing computers each separately taking charge of at least one prescribed kind of image-forming apparatus to deal with the user request, and a request-receiving computer that receives the user request data from the at least one kind of image-forming apparatus and automatically distributes the user request data to the prescribed request-dealing computer based on identification data included in the user request data.

Fig. 1

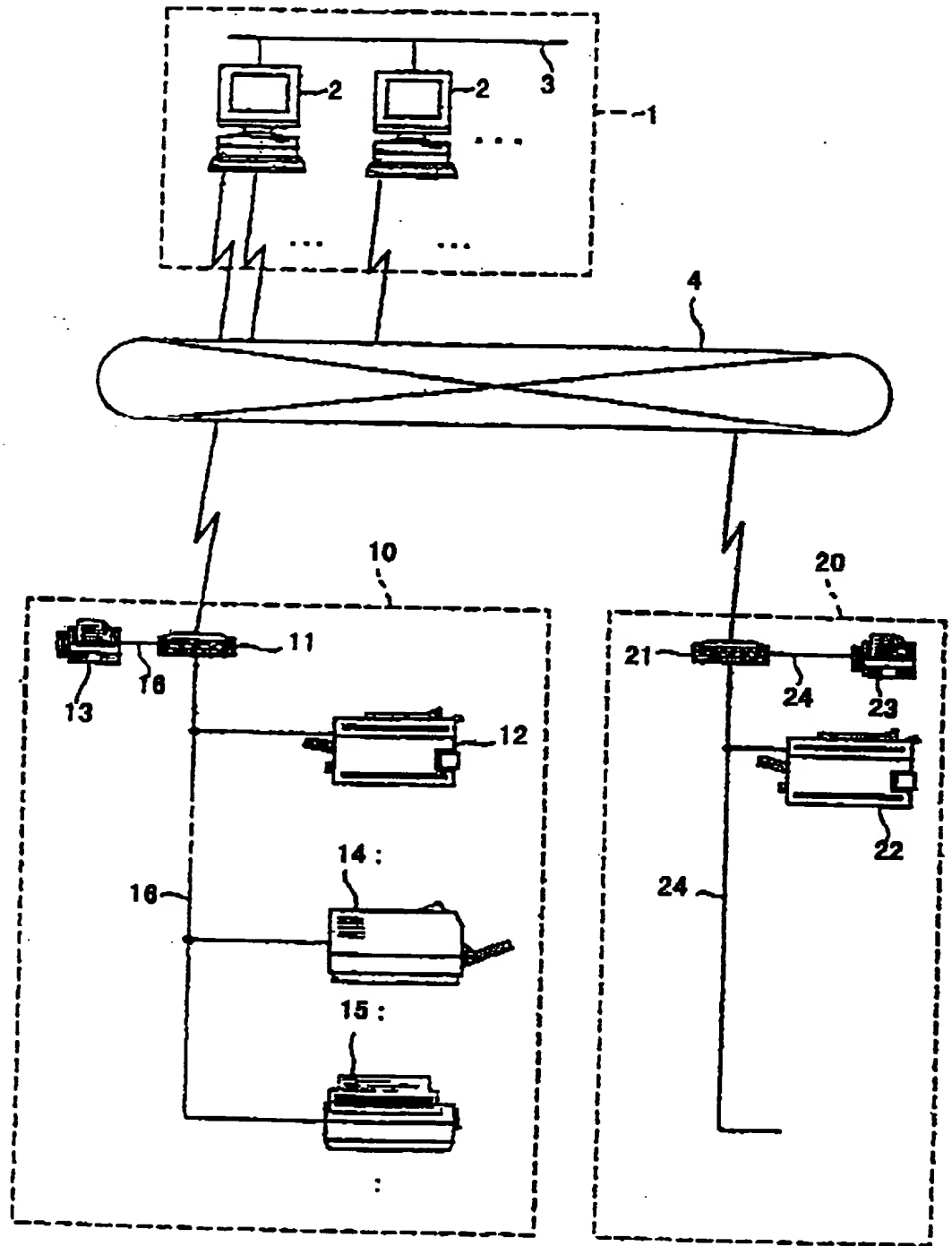


Fig. 2

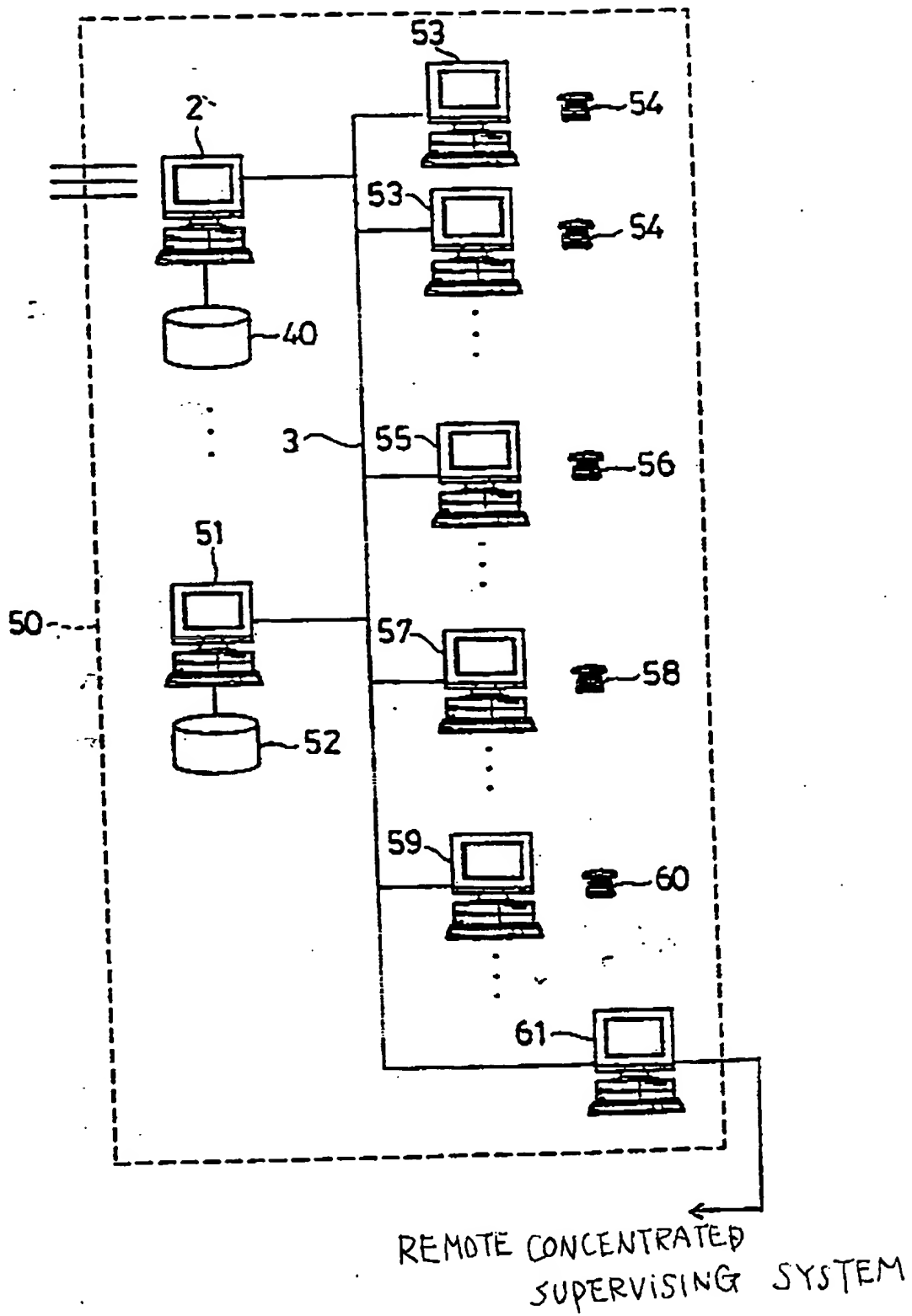


Fig. 3

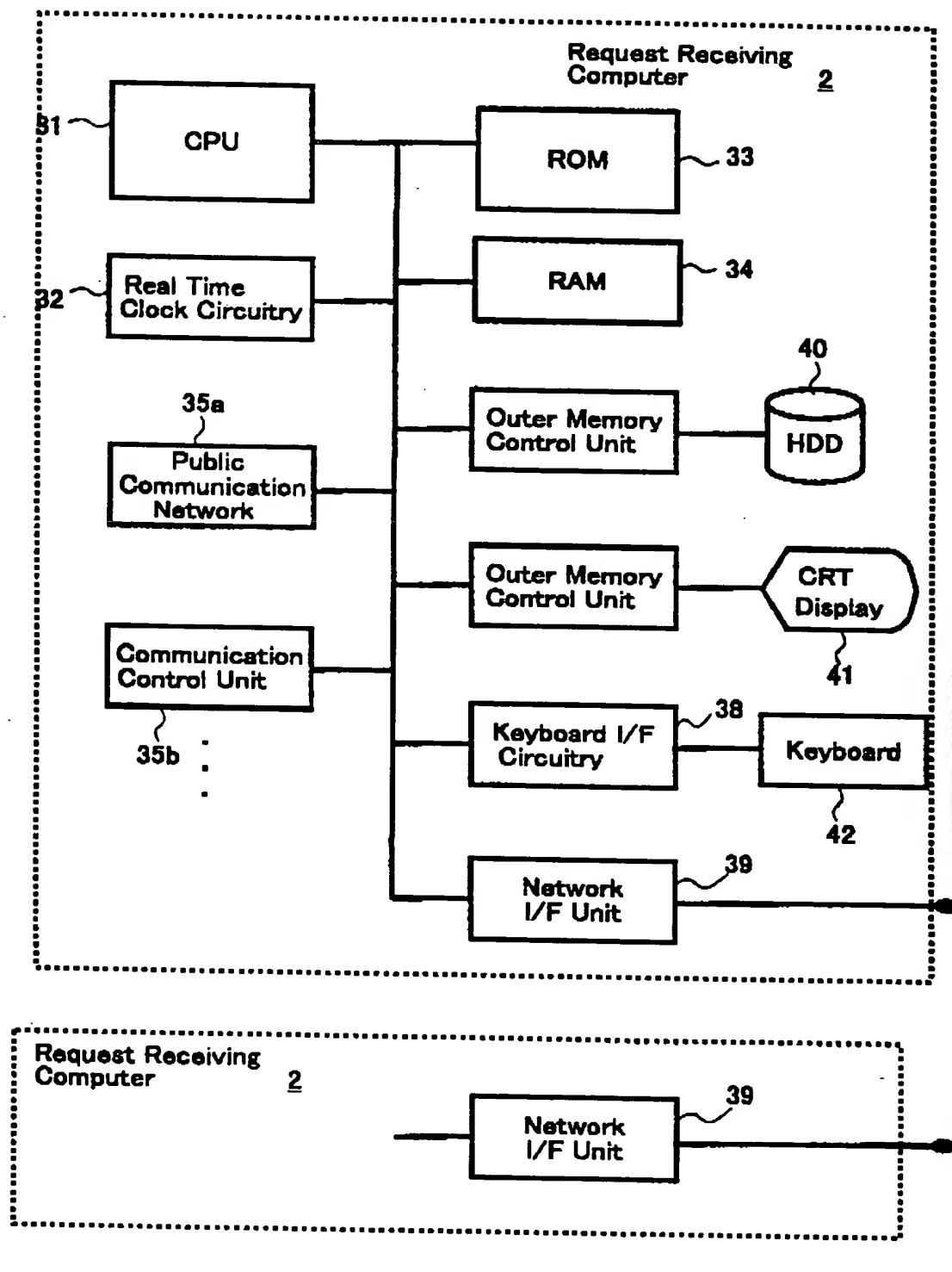


Fig. 6

Request dealing computer Classification	Name of Staff	Response capable Model			
		Copier	FAX	PR	Dupli- cator
First Copier Request Dealing Computer	A	1	0	0	0
Second Copier Request Dealing Computer	B	1	1	1	0
⋮					
First Facsimile Request Dealing Computer	a	0	1	0	0
Second Facsimile Request Dealing Computer	b	1	1	0	0
⋮					

Fig. 8

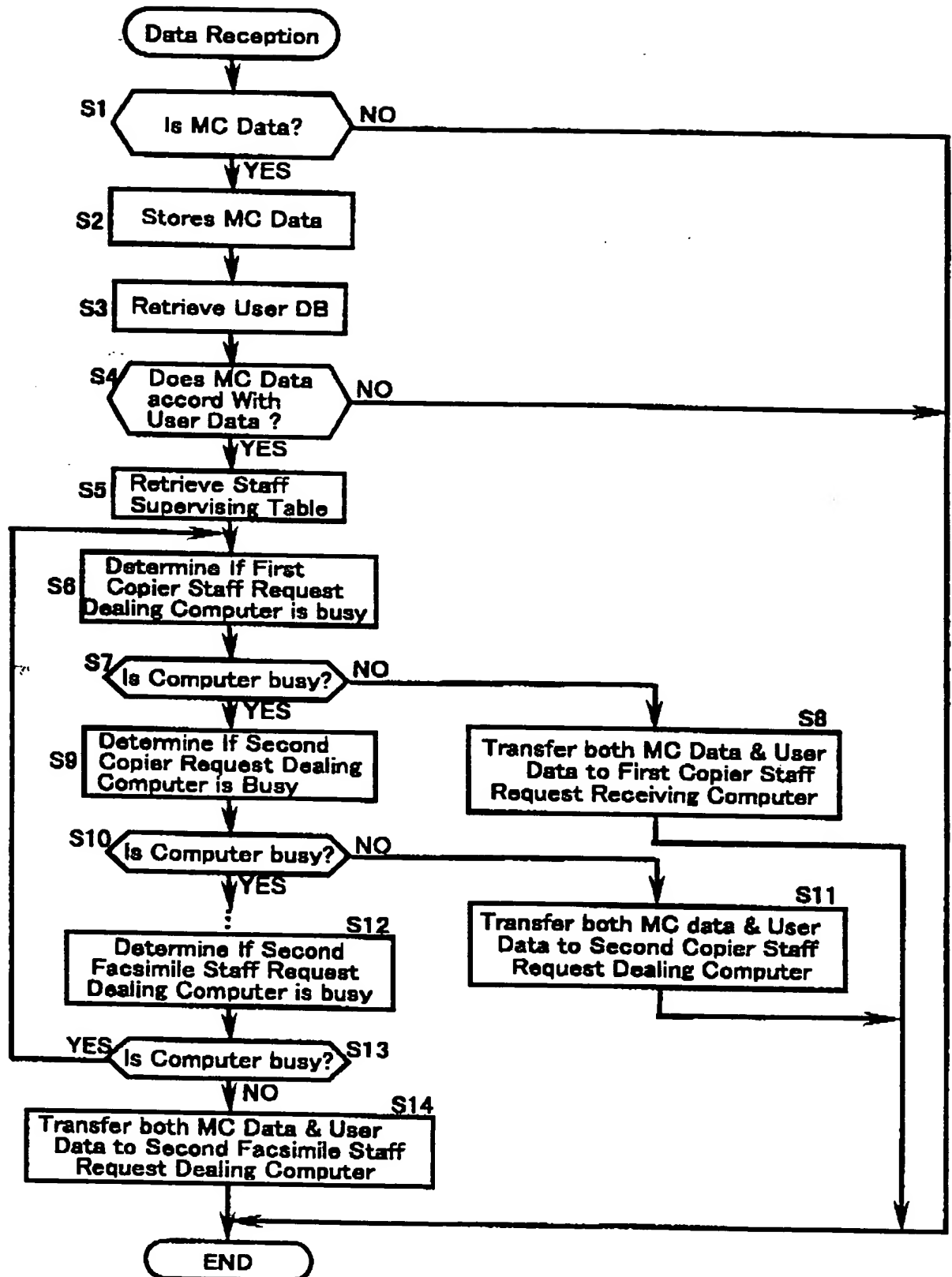


Fig. 9

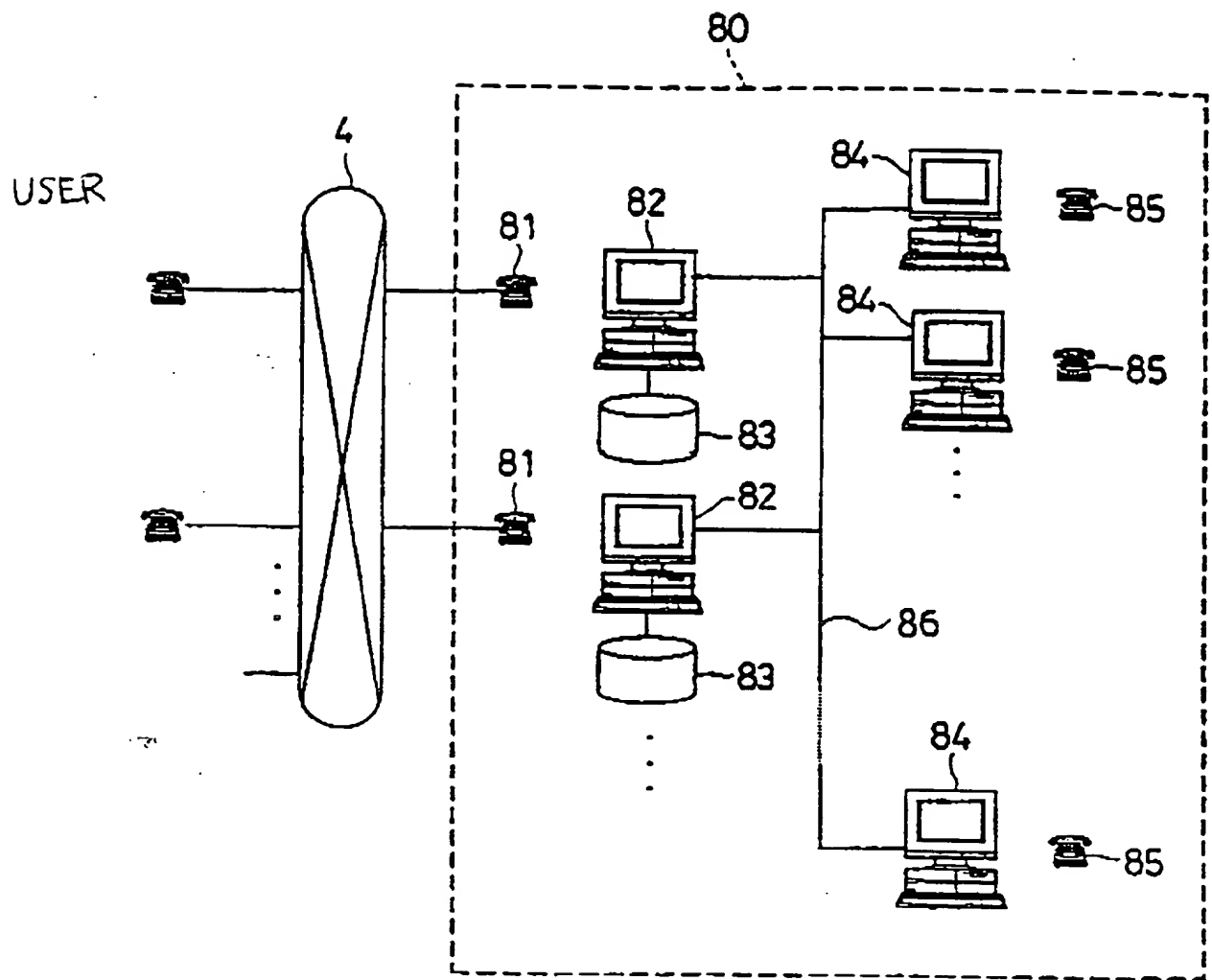


Fig. 10

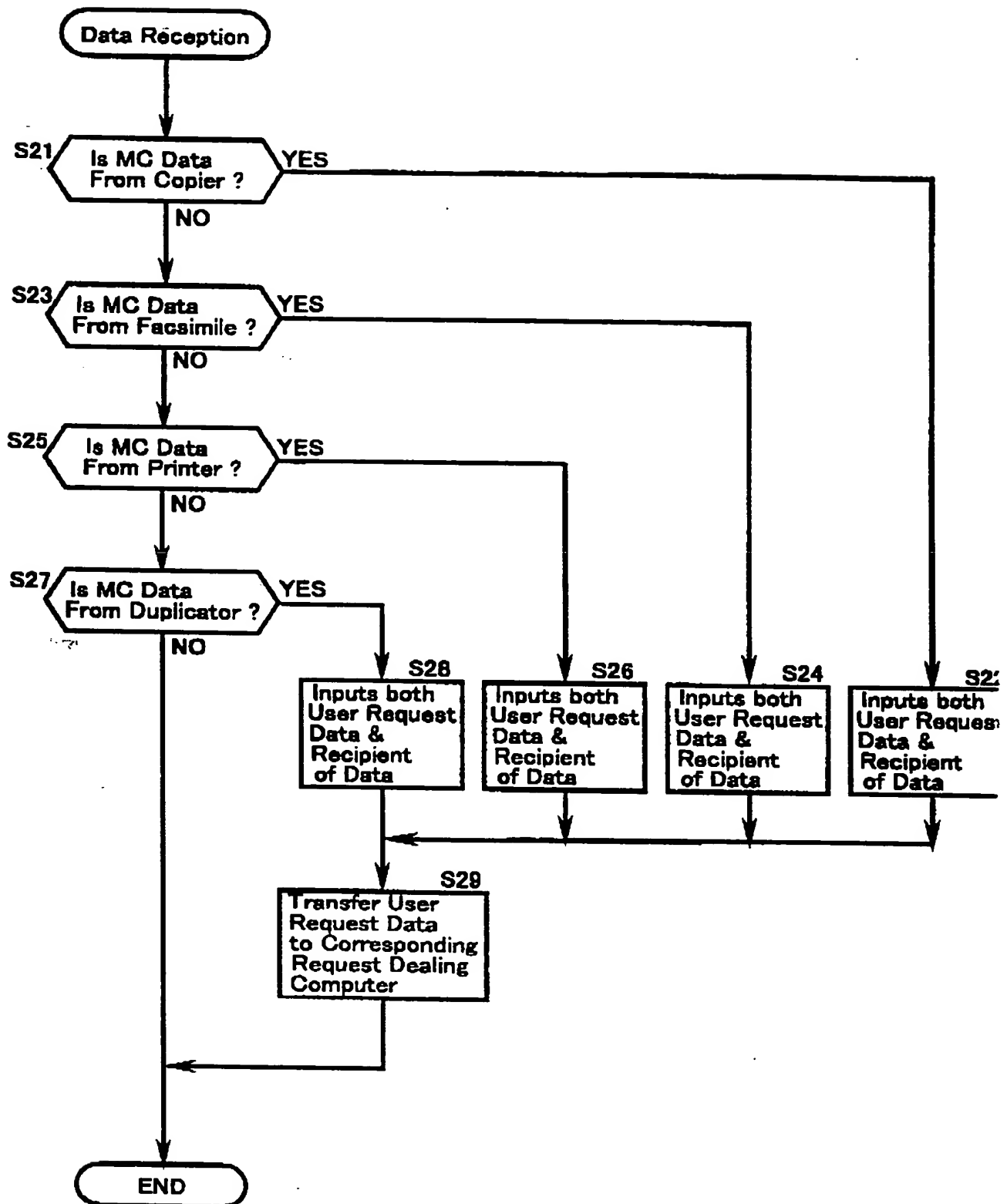


Fig. 11

Data Storing Table (T2)

Model	Number of Machine	Problem Kind	Name of user	User ID	Data Received time
XXXX	001001	xxx	AAAAAAAA	uaaaa	9:10:03
YYYY	003580	www	BBBBBBBBB	ubbbb	9:31:50
XXXX	002135	yyy	CCCCCCCC	ucccc	10:00:05
YYYY	030100	www	DDDDDDDD	udddd	10:03:10
.
.
ZZZZ	029870	zzz	ZZZZZZZZ	uzzzzz	13:21:40

Fig. 12

Table of User Priority Order of dealing (T3)

User ID	Priority Level of dealing
uaaaa	A
ubbbb	A
ucccc	B
udddd	C
.	.
.	.
uzzzz	A

Fig. 13

Priority Level & Displaying Color Designation Table (T4)

Priority Level of Dealing	Displaying Color
A	Color
A	Color
B	Color
C	Color
.	.
.	.
A	Color

Fig. 14

Table Storing Data arranged in priority Order (T5)

Model	Number of Machine	Accident Kind	Name of user	Data Received time	Priority
XXXX	001001	xxx	AAAAAAAAA	9:10:03	A
YYYY	003580	www	BBBBBBBBB	9:31:50	A
XXXX	029870	zzz	ZZZZZZZZ	13:21:40	A
YYYY	002135	yyy	CCCCCCCCC	10:00:05	B
.
.
YYYY	030100	www	DDDDDDDDD	10:03:10	C

Fig. 15

Received Data Storing Table (T2)

Model	Number of Machine	Problem Kind	Name of user	User ID	Data Received time
XXXX	001001	xxx	AAAAAAAAA	uaaaa	9:10:03
ZZZZ	029870	zzz	ZZZZZZZZZ	uzzzz	13:21:40
.
YYYY	030100	www	DDDDDDDD	udddd	15:30:00
XXXX	002135	yyy	CCCCCCCC	ucccc	15:30:00
YYYY	003580	www	BBBBBBBB	ubbbb	15:30:00

Fig. 16

Table Storing Data arranged in priority order (T5)

Model	Number of Machine	Problem Kind	Name of user	Data Received time	Priority
XXXX	001001	xxx	AAAAAAAAA	9:10:03	A
ZZZZ	029870	zzz	ZZZZZZZZZ	13:21:40	A
YYYY	003580	www	BBBBBBBBB	15:30:00	A
XXXX	002135	yyy	CCCCCCCCC	15:30:00	B
.
.
YYYY	030100	www	DDDDDDDDD	15:30:00	C

Fig. 18

Model Name	Machine Number	Problem Kind	User Name	Data Received time
XXXX	001001	xxx	AAAAAAAAA	9:10:03
YYYY	003580	www	BBBBBBBBB	9:31:50
XXXX	002135	yyy	CCCCCCCCC	10:00:05
.
.
.
.
ZZZZ	029870	zzz	ZZZZZZZZ	13:21:40



Addition of new Data Received

Model Name	Machine Number	Problem Kind	User Name	Data Received time
XXXX	001001	xxx	AAAAAAAAA	9:10:03
YYYY	003580	www	BBBBBBBBB	9:31:50
XXXX	002135	yyy	CCCCCCCCC	10:00:05
.
.
.
.
ZZZZ	029870	zzz	ZZZZZZZZ	13:21:40
YYYY	004096	yyy	VVVVVVVV	14:03:20

Fig. 19

Model Name	Machine Number	Problem Kind	User Name	Data Received time
XXXX	001001	xxx	AAAAAAAA	9:10:03
YYYY	003580	www	BBBBBBBB	9:31:50
XXXX	002135	yyy	CCCCCCCC	10:00:05
.
.
.
.
ZZZZ	029870	zzz	ZZZZZZZZ	13:21:40

Deletion of Data When Request is Dealt

Model Name	Machine Number	Problem Kind	User Name	Data Received time
XXXX	001001	xxx	AAAAAAAA	9:10:03
XXXX	002135	yyy	CCCCCCCC	10:00:05
.
.
.
.
ZZZZ	029870	zzz	ZZZZZZZZ	13:21:40

Fig. 20

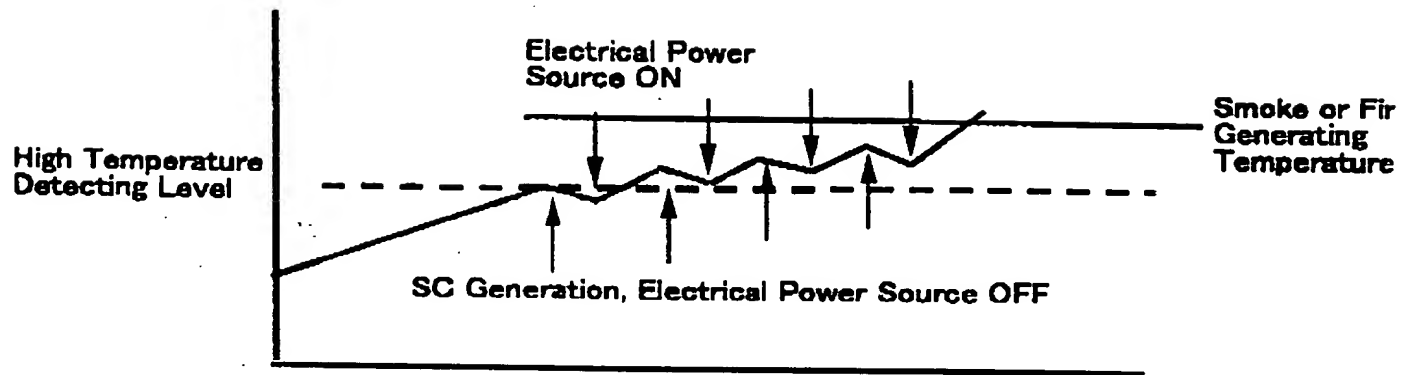


Fig. 21

SC Number Table	
	108
	115
⋮	
	511

Fig. 22

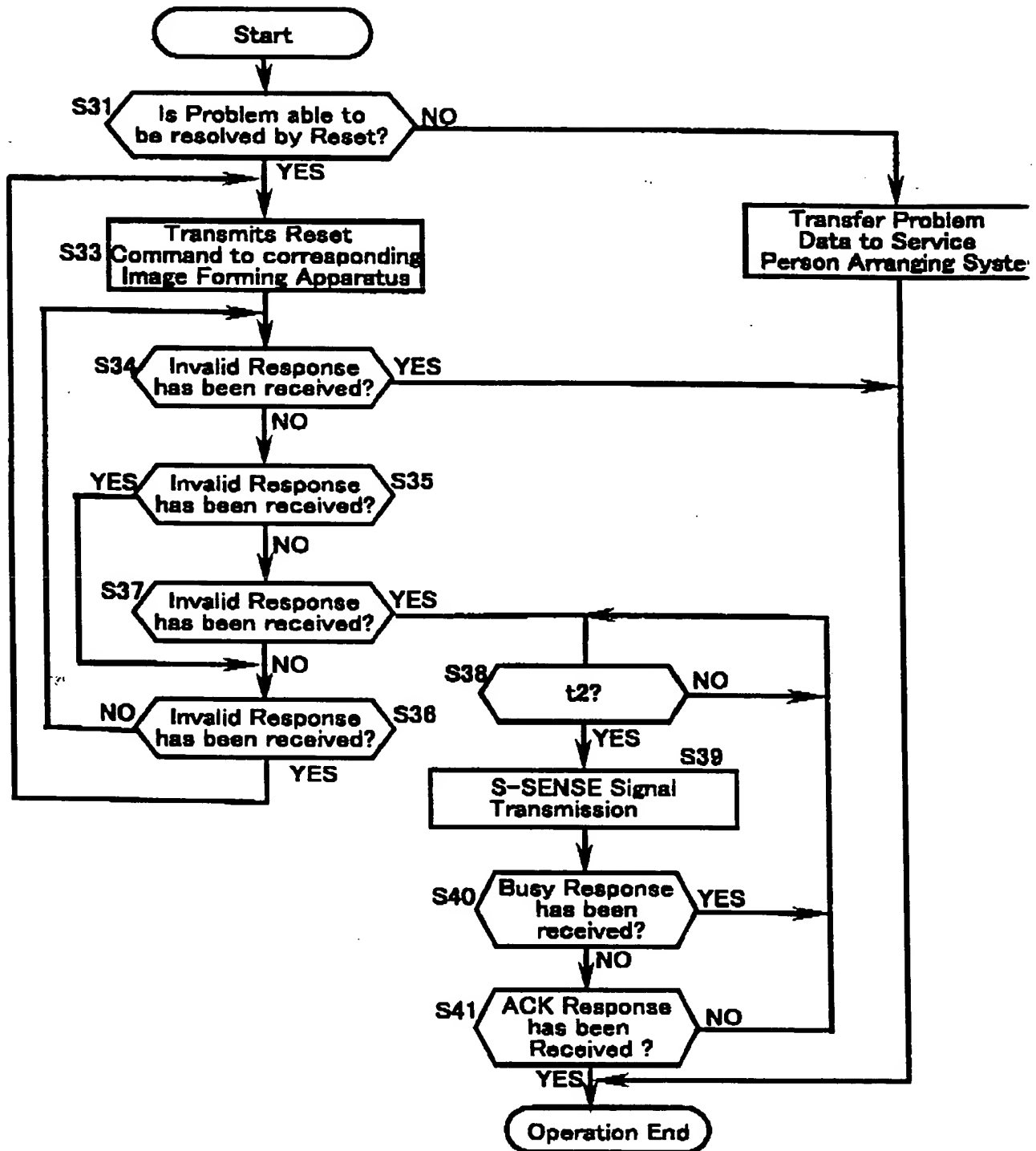


Fig. 23

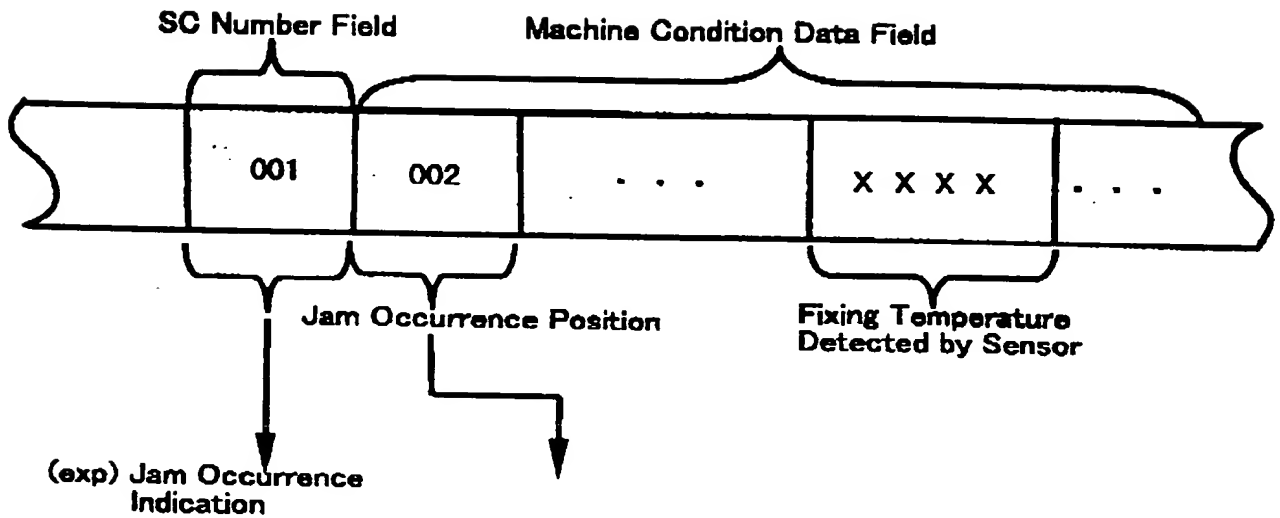


Fig. 24

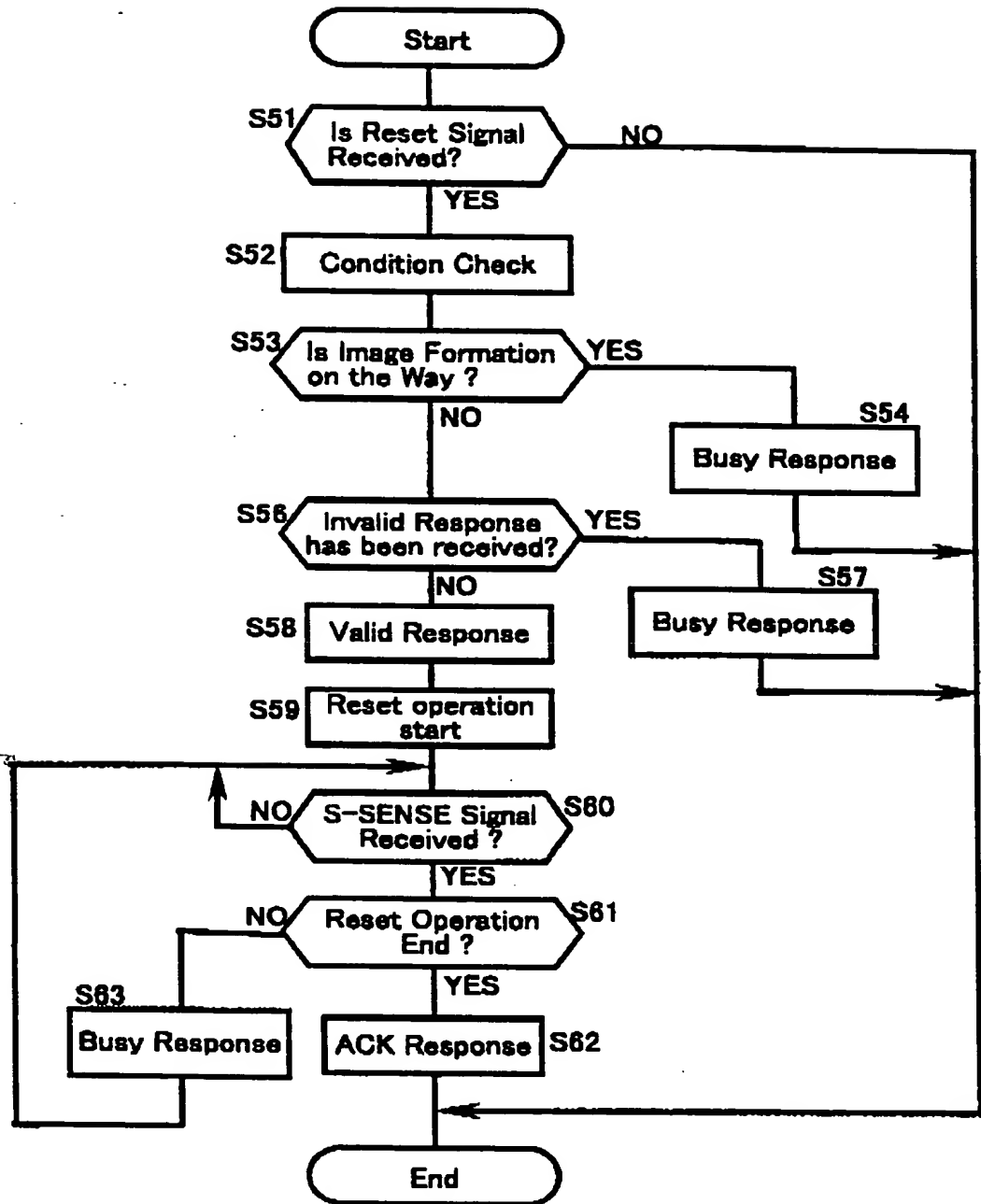


Fig. 25

(Time Chart Illustrating When SC is Dealt & corresponding Image Forming Apparatus stops Operation)

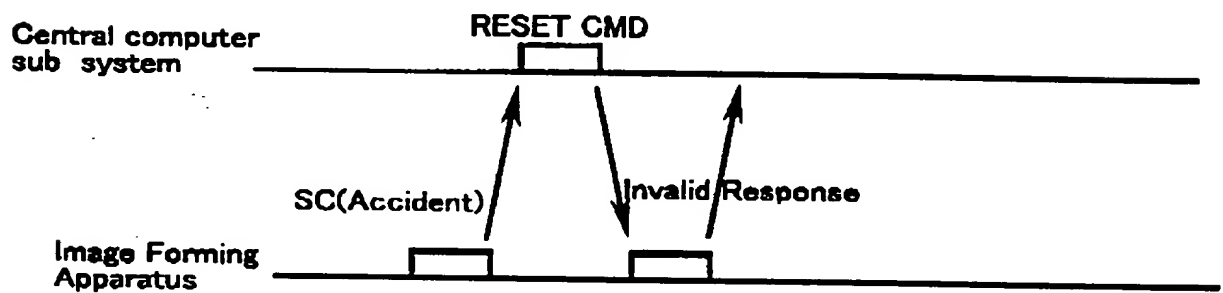


Fig. 26

(Time Chart Illustrating When SC continues & corresponding Image Forming Apparatus is on the way of Operation)

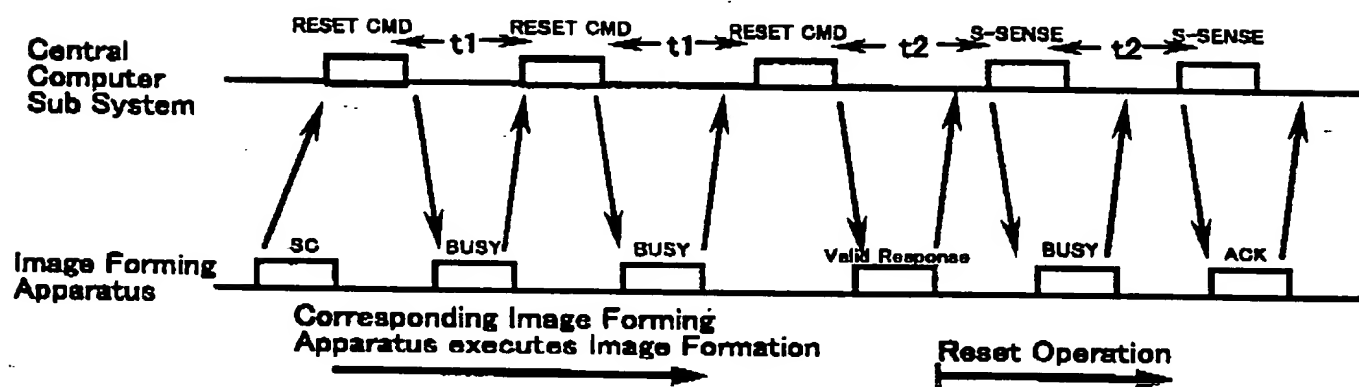


Fig. 27

(Time Chart Illustrating When corresponding Image Forming Apparatus stops Operation)

